



Interpretation of recent sedimentary and tectonic structures off SW Iberia from multibeam bathymetry, seismic reflection and experimental modelling

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New multibeam bathymetric data (MATESPRO survey - June-July 2004) and single channel seismic reflection data (TTR-14 cruise - August 2004) were recently acquired in the Gulf of Cadiz (off South and SW Iberia), aiming a better evaluation of the seismogenic and tsunamigenic potential in this area as well as the characterisation of sedimentation processes, such as mass wasting processes.

Bathymetric and backscatter data from the MATESPRO campaign revealed the presence of new lineaments, striking approximately WNW-ESE, and reaching up to 100 km in length. These features are roughly parallel to the present day movement trajectories of Africa with respect to Eurasia, and appear to be right-lateral strike-slip faults that offset the main thrust faults in the area. Besides these structures, the obtained data also revealed several new bathymetric features of intriguing morphology (named *Wolf Footsteps*), and confirmed the existence of an abrupt boundary between two areas of strikingly different bathymetric characteristics: the *Horseshoe Abyssal Plain*, exhibiting typical sea floor planar morphology, at ca. 4500m; and the area immediately next to it to the East, which exhibits a convoluted morphology, and a westwards dip of about 1° between depths of ca. 4000m and 200m.

During the TTR-14 Cruise Leg 1 on board of the R/V Professor Logachev, five long

single channel seismic reflection profiles (PSAT 244-248) were acquired in order to constraint interpretations regarding the *Wolf Footsteps* features, and the WNW-ESE major tectonic lineaments.

We present new updates on the interpretation of the collected bathymetric data and seismic profiles, and discuss a possible origin for the *Wolf Footsteps* comprising gravitational collapse and large scale landslides formation, possibly related to active faults. Similarly, we present a detailed interpretation of the referred lineaments, as active major tectonic structures playing an important role in the present day general context of the deformation associated to the Africa-Iberia plate boundary.